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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit: 2851  
Examiner: Hung Nguyen  
Confirmation No.: 6971

**In Re PATENT APPLICATION of:**

**Applicant(s):** Ryoichi AOYAMA et al.

Serial No.: 10/748,240

**Filing Date:** December 31, 2003

For: SELF-CLEANING METHOD FOR  
SEMICONDUCTOR EXPOSURE  
APPARATUS

Atty. Dkt.: OKI 395

**SECOND**

## RESPONSE

## AFTER FINAL

**July 7, 2005**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Sir:**

**The Applicants ask for reconsideration on the basis new facts in argument.**

The attached photocopy<sup>1</sup> shows that quartz (recited in claim 1) ceases to transmit UV at wavelengths shorter than about 185 nm. The Examiner is invited to consider that the UV used in the field of the invention, both for lithography<sup>2</sup> and for lens cleaning,<sup>3</sup> is close to the 185 nm wavelength at which the UV starts to be strongly absorbed. The Applicants' dependent claims recite 157 nm and 193 nm.

<sup>1</sup> The attached page is from Perrin and Hardy, previously cited in the attachment to the May 31 Response.

<sup>2</sup> ArF lasers are now used for exposure, with a wavelength of 193 nm, see specification page 1, line 21.

<sup>3</sup> Less than 200 nm, see page 2, lines 14-19.

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Because the UV absorption of quartz is substantial near the wavelengths of interest, it is important to make the lens thin (specification page 12, line 1).

The Applicants use a Fresnel lens on one side of a transmittal plate and a curved lens surface on the other. This combination permits the lens to be thinner, for a given focal power. Being thinner, the lens absorbs less UV, so that it stays cool and a lower-power UV source can be used. The Applicants have advanced the art by recognizing a problem and solving it, which Mori did not.

The combination is not claimed for any lens, it is claimed for a UV lens made of quartz, which has special requirements. The claimed subject matter is not random, it solves a problem.

The Applicant previously argued that Mori does not suggest to make a lens thinner; does not disclose the combination of a Fresnel lens and concave/convex surfaces; and does not even disclose a Fresnel lens (it discloses a diffraction grating). The Applicant now ask reconsideration on the additional basis that Mori does not at all disclose the *problem* dealt with by the Applicants, namely, that a quartz lens absorbs UV light in proportion to its thickness and therefore is less efficient than it could be, and therefore does not suggest any solution, much the solution claimed by the Applicants.

Respectfully submitted,

*Nick Bromer*

July 6, 2005  
Date

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RESPONSE

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